DOCUMENT RESUME

ED 054 075 SP 005 247

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TITLE	Observations of Academic Performance by Low Achieving College Freshmen Following Instruction by Academically Successful Students Trained To Teach Reading and Study Skill Techniques. Final Report.
INSTITUTION	Wisconsin State Universities Consortium of Research Development, Stevens Point.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-6-2728-2
PUB DATE	Jan 70
GRANT	OEG-3-6-062728-2129
NOTE	26p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Academic Performance, College Freshmen, *College Students, Grade Point Average, Low Ability Students, *Peer Teaching, *Study Skills, Superior Students, *Tutoring

ABSTRACT

No significant improvement was found in the grades of low achieving college freshmen following instruction by academically successful students trained to teach study skills. The investigator trained the study instructors--12 juniors with at least a 3.0 grade point average--in twelve 1-hour sessions. Soon after a session each study instructor spent an hour assisting the student assigned to him. The preparation program for the study instructor included training in elementary principles of learning, note taking, theme writing, term paper writing, student-professor relationships, time scheduling, studying for tests, and SQ3R reading skills. The evaluation of the program's assistance to students was observed by statistical analysis of grade point gains for experimental and control groups, experimental and control males, experimental and control females, and experimental females and males. The only significant difference favored the female control group over the female experimental group. Other results of the study indicated that neither the experimental nor control group was able to significantly improve the second semester grade point average. Further research is suggested on the timing and content of such programs. (Author/RT)

BR 6-2722-2
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ED054075

The Wisconsin State Universities Consortium of Research Development

Research Report

OBSERVATIONS OF ACADEMIC PERFORMANCE BY LOW ACHIEVING COLLEGE FRESHMEN FOLLOWING INSTRUCTION BY ACADEMICALLY SUCCESSFUL STUDENTS TRAINED TO TEACH READING AND STUDY SKILL TECHNIQUES

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United States Office of Education
Bureau of Research - Higher Education

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SP005241

ED054075

FINAL REPORT

WSU-CORD
The Consortium of Research Development
of the
Wisconsin State Universities

Project No. 760-541-70-1007-06
Grant No. 3-6-062728-2129
Local Project No. 2

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January 1970

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

SUMMARY

The purpose of the study was to assist freshmen who were having academic difficulty, and to discover the potential of a procedure in which successful college students were trained as study instructors to provide this assistance. The experimental and control populations of the study were comprised of students with average high school grades, rather low ACT composite college bound percentile scores, and probation standing following one semester of college. They were regarded as a high risk population. The academically successful students selected to be taught to serve as study instructors for the experimental population were recruited from second semester juniors with at least a 3.0 grade point.

The investigator trained the study instructors in twelve one hour sessions. Soon after a session each study instructor would spend an hour assisting the student that had been assigned to him. Study instructors did not serve in the role of tutors, but taught study skills within the framework of a student's curriculum. The preparation program for the study instructor included training in elementary principles of learning, note taking, theme writing, term paper writing, student-professor relationships, time scheduling, studying for tests, SQ3R, reading skills, and self-motivation. Study instructors were paid $1.50 for each hour of participation.

The evaluations of the program's assistance to students, and its own potential were observed by statistical analysis of hypotheses comparing grade point gains for experimental and control groups, experimental and control males, experimental and control females, and experimental females and males. The results of the study indicated that the program was of no apparent benefit to students. The only significant hypothesis was non-supportive and favored the female control group over the female experimental group. Other results of the study indicated that neither the experimental or control groups was able to improve the second semester grade point average significantly over the first semester standings. Consequently, almost all of this high risk population was either suspended or continued on probation.

Despite the results of the study the investigator felt the academically able students may still be a valuable resource to be trained in the process of assisting needy students. Perhaps research which explores better techniques for training them, better content for such programs, longer periods for them to assist needy students, and their involvement with somewhat more able learners will reveal they are effective in such a role. Additional research should be done regarding the characteristics of "high risk" learners to determine if they can, or cannot be helped.

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INTRODUCTION

On every university campus there are students who attempt to be educationally successful while lacking performance skills which enhance learning. Universities have responded to this problem by providing various kinds of skill improvement programs. Reading and study skill instruction for large and small groups of students, tutoring by students majoring in subject matter areas, and service efforts by fraternities are examples of such programs.

Frequently the skill instruction program is directed by a university faculty member, and is administered in a course setting. Twenty-five or more students may meet in a group session for a determined number of periods. Other efforts have attempted to "program" reading and study techniques in such a manner that students can undertake improvement as time, convenience, and need might indicate.

Inherent in these systems are various kinds of problems. For example, the former very quickly becomes an expensive venture in staffing while serving few students, and the latter requires a persistent, self-directed, and highly motivated student. These kinds of problems have caused the search for possible variations in program structure and

procedure. Such investigation is further concerned with identifying appropriate content for such programs, and why particular students should or should not be selected for such training.

Many studies and much information is needed before universities will be effectively dealing with the problem of the learner with skill deficiencies. This study is an attempt to explore another possible technique in which this problem may be approached. Hopefully the results of the study will be helpful to others as they evaluate programs already in practice, and contemplate further research.

Need for the Study

The freshman attrition rate at universities tends to be rather high. This loss of population may be accounted for by a number of reasons. For instance from the academic perspective university admission requirements may be lenient, students may lack self-motivation to be academically successful, or the high school record which enabled the student to gain college entrance may have been accomplished on the basis of study techniques and learning practices which will not result in survival in the university curriculum.

In a sense this study encompasses each of these areas. The population was one from which academic difficulty might be expected, the likelihood that some students in the program were much in need of motivation certainly existed, and the evidence of first semester academic performance

strongly suggested that the population lacked proficiency in study techniques.

Considerable need exists for universities to explore a great number of such variables as a means of determining why this high attrition exists. The results of such investigation will undoubtedly cause university administrations to re-evaluate criteria for admitting students, and in this evaluation they will raise issues philosophical in nature, issues which are economically related, and issues which must be considered in relationship to the educative, or learning process. The need for this study does not lie directly in the philosophical question of "Who should be educated", or in the economic area of "How many can we afford to educate", instead the study is concerned with the educative process since ultimately most other decisions are dependent on finding successful procedures for educating the enrolled college student.

Fundamental to the problem of high attrition of college freshmen is the student with questionable academic performance in high school, and poor standing in other criteria which institutions consider for student admission. Attempting to reduce the attrition of such students is the primary need for this study. These are the students that can be regarded as a "high risk" population, and this risk factor is the basis for selecting the experimental subjects. Additionally, if results were to indicate that a high risk

population could show significant academic improvement because of reading and study skill improvement as developed in this program the treatment might also be advantageous to learners somewhat more able, but also disadvantaged.

A second need for the study is the trial of the program format. The program was designed to require a minimum of faculty involvement by using capable students to assist needy students. Minimum faculty involvement would decrease expenses for administering the program. Maximum individual attention to students through a one to one instructor-learner ratio might reduce student attrition which is frequently high in study skill programs. Furthermore, under such an arrangement the skills could be more realistically taught and utilized within the curriculum of each student.

Another need for the study was to explore the possibility of finding capable on-campus personnel, (students), who could be trained and financed economically as study skill instructors, and who could provide flexible scheduling for study sessions with the students who were to be assisted.

Purpose of the Study

The purpose of the study was to assist freshmen who were having academic difficulty, and to discover the potential of a particular procedure for such assistance. The determination of the program's assistance to students, and its own potential were observed by statisitcal analysis of the following hypotheses:

1. There is no significant difference in academic performance between experimental and control groups, when the experimental group has received instruction in reading and study skill techniques.
2. There is no significant difference in academic performance between experimental and control groups of male students, when the experimental group has received instruction in reading and study skill techniques.
3. There is no significant difference in academic performance between experimental and control groups of female students, when the experimental group has received instruction in reading and study skill techniques.
4. There is no significant difference in academic performance between male and female experimental groups who have received reading and study skill instruction.

Population for the Study

Three populations had to be identified for the study. There was need for a group of students to be trained to teach reading and study skills, a group of students to receive treatment, and students to serve as a control group.

The first group of students are hereafter identified as "study instructors". This term was carefully chosen to describe their role of teaching students to be more effective in studying. These students were not tutors. The study

instructors were selected from beginning second semester juniors who had a cummulative grade point average of 3.0 or higher.

The experimental and control groups were recruited from the following criteria:

1. Student percentile rank in high school graduating class.
2. ACT Composite college bound percentile scores (Ranging from 13 to 34, with two exceptions).
3. First semester grade point averages (Academic probation, grade point .75 to 1.59).
4. High school grades, C- to C+ for the senior year, (This category established by observation).
5. Second semester freshman.

Data for 1 - 4 above can be found in Appendix A, page 17. The statistical analysis for equating the groups on items 1 - 3 above can be found in Appendices B, C, and D, pages 18, 19, and 20. The data indicate no significant differences for the groupings -- experimental vs. control, female experimental vs. female control, male experimental vs. male control, and female experimental vs. male experimental. These are the comparisons which are tested in the hypotheses under purpose one.

There were six female and six male study instructors. Each worked with a student of the same sex.

METHODOLOGY

Description of the Experiment

The investigator met with a group of twelve study instructors for twelve one hour sessions. During each of these sessions the study instructors were taught the various study procedures that made up the treatment for the experiment. Techniques for teaching these skills to students in the experimental group were also discussed. Sessions were held twice each week for six weeks early in the second semester.

Each study instructor spent an hour with an individual student sometime after he had attended specific training sessions. Study instructors and students mutually agreed on the location and time for a session. During the last two weeks of the experiment the study instructors spent an extra hour per week for a total of fourteen hours of assistance to students in the experimental group.

The following topics were presented to the study instructors to be taught in turn to the students in the experimental group:

1. Elementary principles of learning
2. Note taking
3. Theme writing
4. Term paper writing
5. Student-professor relationships
6. Time scheduling

7. Being evaluated
    a. Course requirements
    b. Studying for and taking examinations
8. SQ3R
9. Reading
    a. Skimming, scanning, surveying
    b. Word recognition skills
    c. Graphs and charts
    d. Vocabulary development
    e. Specific reading techniques for various subject matter areas.
10. Motivation

Study instructors were paid $1.50 per hour for training sessions and for sessions with a student. Each received $18.00 for the training sessions, and $21.00 for the fourteen sessions with a student.

The economy of such a program would result from a trained study instructor tutoring two or three different students a semester for three or four semesters.

RESULTS

There were four hypotheses statistically observed in the study. All of these hypotheses dealt with the analysis of grade point earned at the completion of a semester in which the experimental group had received treatment in reading and study skill techniques.

Hypothesis one stated: There is no significant difference in academic performance between experimental and control groups, when the experimental group received instruction in reading and study skill techniques.

The data in Appendix E, page 21, indicate that there was no significant difference between the variables. The hypothesis is accepted.

Hypothesis two stated: There is no significant difference in academic performance between experimental and control groups of male students, when the experimental group has received instruction in reading and study skill techniques.

When the hypothesis was tested (see Appendix E, page 21) the results indicated that differences existed, but they could not be measured at the .05 level. The hypothesis was accepted.

Hypothesis three stated: There is no significant difference between experimental and control groups of female students, when the experimental group has received instruction in reading and study skill techniques.

When testing this hypothesis the results indicated there was a significant difference at the .05 level, (see Appendix E, page 21). The control group actually performed better academically in the second semester than the experimental group which had received instruction in skills. The hypothesis was rejected. The investigator has no explanation for this circumstance. The female study instructors received the same instruction as their male counterparts, and followed the same program as the male study instructors when assisting a student in the experimental group.

Hypothesis four stated: There is no significant difference in academic performance between male and female experimental groups who have received reading and study skill instruction.

The testing of this hypothesis indicated that while differences existed they could well be attributed to chance (See Appendix E, page 21). The differences could not be accounted for at the .05 level of significance. The hypothesis was accepted.

DISCUSSION AND RECOMMENDED RESEARCH

The findings of the study quite obviously show that the experiment was not successful in the attempt to help poorly achieving college freshmen who were identified as a "high-risk" population. None of the four hypotheses supported this program in which high achieving upper classmen were trained to serve as study instructors. In fact, the third hypothesis concerned with the female experimental and control groups, indicated the experimental group was actually less successful than the control group.

The failure of the program to provide significant differences in achievement between experimental and control groups would seem to lie either in the nature of the program, or in the nature of the students who made up the experimental and control groups.

Changes in the experimental treatment could very likely affect the results. For instance if the study instructors had received more training sessions, or had received more intensified instruction in reading and study skill techniques, they may have been more successful in teaching these skills to the experimental group. Perhaps more emphasis should have been placed on particular skills in the program, and some of the skills may need to be eliminated. The program may have been more effective if the study instructor had spent more time in a tutorial role in one or more of the critical subject area needs of the student. This procedure

would require certain provisions in recruiting study instructors.

Perhaps, in the training sessions for the study instructors, more time should have been spent in demonstrating how to teach these techniques to students. If this were undertaken it would require reducing the number of skills that could be introduced to them, or increasing the number of training sessions for presenting skills.

The population may have been a significant contributor to the failure of the program. This population, on the basis of high school grades and ACT scores, would be identified in prediction formulas as students who would likely experience academic difficulty. They did, in fact, experience such difficulty in the first semester of college work and were placed on academic probation.

One of the challenging questions this study raised is whether or not such students can become academically successful. Did the program fail, or are the requirements that are necessary for this type of student to make dramatic academic improvement so difficult that only occassional students, or small percentages of such students will succeed? Several factors must be considered. Do low ACT scores indicate a serious lack of fundamental knowledge necessary to success in higher education? Do average grades (C's) further indicate that a student is poorly prepared content-wise? Can it be speculated that both of these factors are related to ineffective learning procedures on the part of the

student? Do all these factors in combination suggest that an average student in high school cannot become an average student in college?

Everyone knows some of these students who have succeeded. However, the requirements regarding academic suspension, probation, or good standing took their toll for the population in this study. Of the 24 students comprising the experimental and control groups nineteen were identified as suspensions, three could continue on probation, and two were identified as being in good standing. Statistical analysis indicates that when the first and second semester grade points were compared for the combined experimental and control groups there was no significant difference, (see Appendix F, page 22).

Assistance programs for needy students might have to contain reading and study skills, counseling sessions, tutorial assistance, re-education in academic deficiencies, reduced course loads, optimum environmental conditions, and even concern for diet and health factors. Additionally, the element of time must be considered. Learning the techniques of learning is in itself a difficult and time consuming task, but it is perhaps not as difficult as it is for the individual to develop such characteristics of the good student as perseverance, desire, self-deprivation, interest, thoroughness, creativeness, stamina, and an ability to spend many hours studying. Being academically successful in college may be far more difficult than is commonly believed.

The "high risk" population is certainly in need of help. The admission of such students to college should at least be partially considered in relationship to how an institution perceives itself as being able to deal fairly with the risk.

RECOMMENDED RESEARCH

1. That experimentation be done to determine if certain kinds of content in study skill programs is more important to students who have particular performance characteristics.

2. Research should be conducted to determine how study skill programs can best be combined with reduced student credit loads tutorial help for students, and prolonged development of experiential backgrounds as a means of helping intellectually able, but educationally deprived students.

3. Longitudinal study should be made of academic assistance programs to students to compare the long range effect of tutorial help as opposed to programs designed to make students effective self-learners.

4. Research should be conducted to determine if poorly performing college students, who have been quite successful in high school grades and A.C.T. testing, might find professional counseling in establishing personal and educational goals to be of greater benefit than reading and study skill programs.

5. Research should be conducted to identify characteristics in able college students which are most effective in a study instructor relationship with a student.

6. Research should be conducted to determine if varying the length of the preparation of a study skill instructor, or varying the length of time he assists a student, is important to the progress of assisted students.

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Appendix A

Basic Data Used in the Study

High School Grades

Subject	High School Percentile Rank	College Bound Percentile Rank (ACT)	English	Math	Social Studies	Natural Science	First Semester Grade Point	Second Semester Grade Point	Cumulative Grade Point Average
Experimental Girls									
1	28	27	C	D	B	D	1.31	.50	.96
2	58	33	C	D	C	C	1.19	1.53	1.35
3	63	13	B	C	B	C	1.47	2.25	1.87
4	36	22	C	D	C	B	0.87	1.43	1.14
5	57	27	B	D	C	C	1.43	2.17	1.77
6	46	33	C	C	C	C	1.43	2.00	1.71
Experimental Boys									
7	32	22	C	C	C	C	1.38	2.40	1.87
8	39	27	C	C	C	C	1.06	2.07	1.55
9	29	62	C	D	B	C	1.19	2.00	1.58
10	29	13	D	D	C	C	1.00	1.75	1.39
11	44	55	B	D	C	D	1.27	1.73	1.46
12	33	35	C	D	C	C	1.56	1.71	1.63
Control Girls									
13	53	13	B	D	D	C	.93	.93	.93
14	19	27	B	C	B	C	.80	2.13	1.48
15	38	13	B	C	C	C	1.47	1.64	1.55
16	68	22	B	C	B	D	1.00	2.36	1.76
17	26	33	B	C	B	C	1.31	2.92	2.03
18	44	33	C	C	C	C	1.47	2.00	1.68
Control Boys									
19	47	27	C	C	C	C	1.33	1.33	1.33
20	29	17	C	C	C	C	1.20	.64	.93
21	39	33	B	D	C	C	1.00	1.13	1.06
22	36	13	D	C	C	C	1.00	2.21	1.59
23	58	27	C	D	B	C	1.31	1.73	1.52
24	43	33	C	D	C	C	1.56	2.31	1.94

Appendix B

DATA FOR EQUATING GROUPS

Student Percentile in High School Graduating Class

	Square of Standard Error of Mean (unpooled method)	d = Standard Error of the Difference of Means	Difference in Means	Critical Ratio	t Table Probability *
experimental vs. control	166.8939 173.7121	18.4555	-.5000	-.0270	t = 0
female experimental vs. female control	492.6000 395.0000	29.7926	7.6667	-.0241	t = .60
male experimental vs. male control	241.7333 369.3333	24.7197	-7.6667	-.3101	t = .65
female experimental vs. male experimental	492.6000 241.7333	27.0985	14.6667	.5412	t = .70

*Refer to the expanded Fisher and Yates tables.

Appendix C

DATA FOR EQUATING GROUPS

ACT Composite College Bound Percentile Scores

	Square of Standard Error of Mean (unpooled method)	d = Standard Error of the Difference of Means	Difference in Means	Critical Ratio	t Table Probability *
experimental vs. control	103.2500 59.2651	12.7481	6.333	.4967	t = .65
female experimental vs. female control	142.9666 124.3000	16.3482	2.3333	.1427	t = .57
male experimental vs. male control	311.3333 136.4666	21.1612	10.3333	.4883	t = .68
female experimental vs. male experimental	142.9666 311.3333	21.3143	-9.5000	-.457	t = .65

*Refer to the expanded Fisher and Yates tables.

Appendix D

DATA FOR EQUATING GROUPS

First Semester Grade Point Averages

	Square of Standard Error of Mean (unpooled method)	d = Standard Error of the Difference of Means	Difference in Means	Critical Ratio	t Table Probability *
experimental vs. control	.1487 .1356	.5331	.0650	.1219	t = .50
female experimental vs. female control	.3379 .2847	.7890	.1200	.1520	t = 0
male experimental vs. male control	.3163 .3119	.7925	.0100	.0126	t = 0
female experimental vs. male experimental	.3379 .3163	.8088	.0400	.0494	t = 0

*Refer to the expanded Fisher and Yates tables.

Appendix E

DATA FOR TESTING HYPOTHESES FOR GRADE POINT DIFFERENCES

	Square of Standard Error of Mean (unpooled method)	d = Standard Error of the Difference of Means	Difference in Means	Critical Ratio	t Table Probability *
Hypothesis One					
experimental vs. control	.0450 .0685	.3368	-.0558	-.1656	t = .60
Hypothesis Two					
male experimental vs. male control	.1171 .0844	.4488	.9797	2.1829	t = .90
Hypothesis Three					
female experimental vs. female control	.0809 .2173	.4449	-4.0922	-7.4948	t = .95
Hypothesis Four					
female experimental vs. male experimental	.0809 .1171	.4449	1.0850	-2.4387	t = .85

*Refer to the expanded Fisher and Yates tables.

Appendix F

COMPARISON OF TOTAL POPULATION GRADE POINTS FOR FIRST AND SECOND SEMESTER

	Square of Standard Error of Mean (unpooled method)	d = Standard Error of the Difference of Means	Difference in Means	Critical Ratio	t Table Probability *
First Semester	.0679	.469	-.55	-1.172	t = .83
Second Semester	.1528				

*Refer to the expanded Fisher and Yates tables.